

# Target Math

## Class 5

### Term 1

1. Roman numerals
2. Notation and place value  
(8 digit numbers in Pakistani and International way)

3. Addition
4. Subtraction
5. Multiplication
6. Division
7. Simplification
8. Divisibility

9. Factors

9. Multiples  
Multiples

10. Common Multiples  
Common Multiples

11. Prime and Composite numbers

p # 1-5 (from Book Get Ahead 5 )  
p #001, 002, 003 (from target)

p #004 (from target)  
p #005 (from target)  
p #006 (from target)  
p #007, 008 (from target)  
p #009, 0010, 0011 (from target)  
p # 6-13 (from Book Get Ahead 5 )  
p #0012 (from target)  
p #0013 (from target)  
p # 14-21 (from Book Get Ahead 5 )  
p # 22 -23 (from Book Get Ahead 5 )  
p #0014 (from target)  
p # 24 (from Book Get Ahead 5 )  
p #0014 (from target)  
p # 25-27 (from Book Get Ahead 5 )

Write first ten multiples of 14, 8, 6, 15, 9, 7.

Write first ten multiples of these pairs of numbers and find their common multiples.

1. 6 and 4
2. 12 and 18
3. 10 and 5
4. 12 and 8

## Thinking even b-i-g-g-e-r: 8-digit numbers

What happens when we add 1 more to 9999999 (the biggest 7-digit number)?

On our Pakistani place-value chart, something very special happens: we run out of lacs, and need to add a new house or period: the House of Crores:

		Lacs		Thousands		Units		
TC	C	TL	L	TTh	Th	H	T	U
		9	9	9	9	9	9	9
	1	0	0	0	0	0	0	0

'C' means 'crores' and 'TC' (the next column to the left) means 'ten crores'—a giant-sized number with 9 digits!

A Write the number in words:

8,00,00,000

1. 4,00,00,000
2. 6,00,00,000
3. 2,00,00,000
4. 5,00,00,000
5. 9,00,00,000



B Write the number:

three crore 3,00,00,000

eight crore

one crore

seven crore

1 two crore

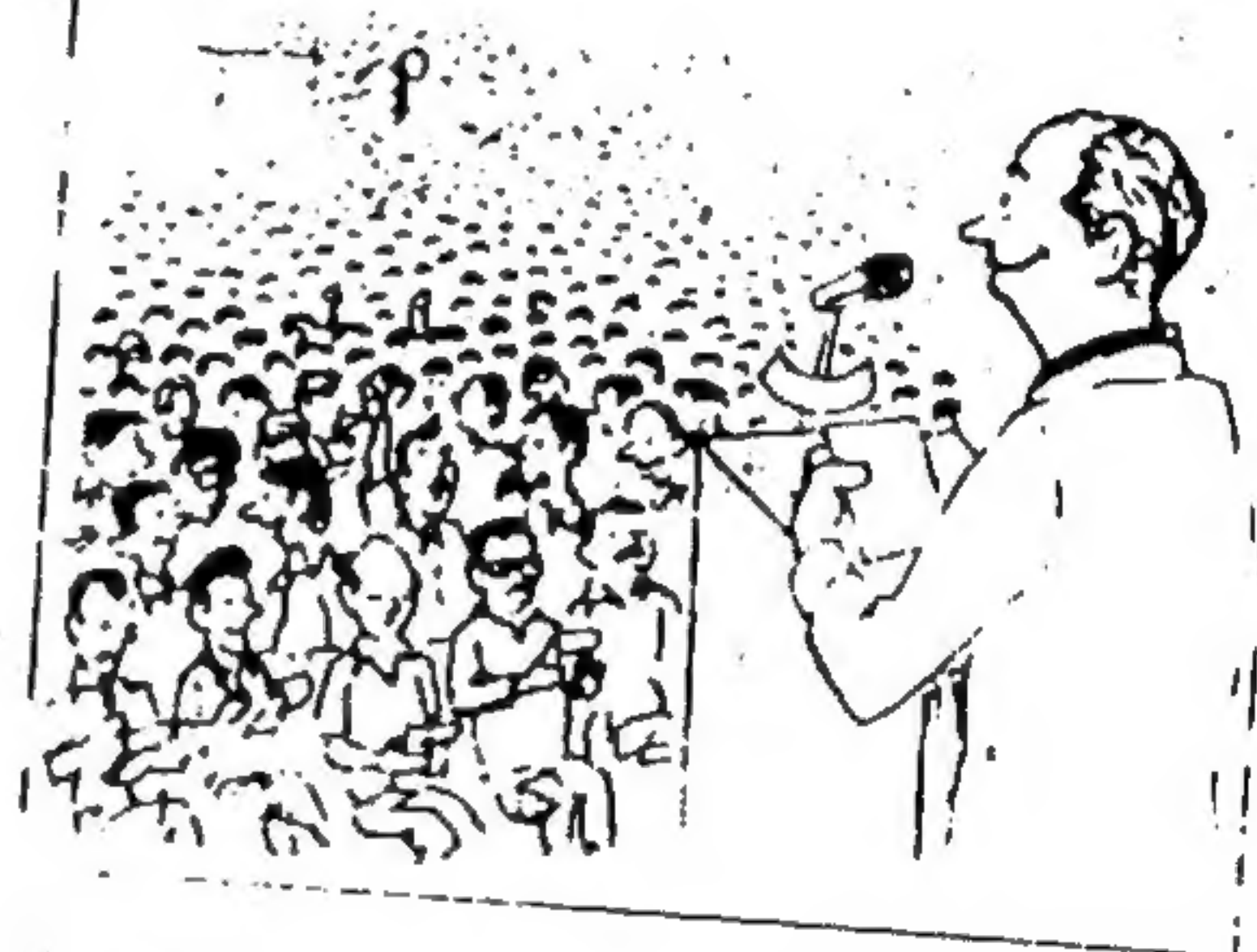
nine crore

One crore is the smallest 8-digit number in the Pakistani place-value system.

When we listen to the news on the radio, or watch TV programmes about Pakistan's economy or read newspaper articles, we will often meet this word.

It helps us to think in terms of very large numbers.

If one crore people come to hear the Prime Minister speak, he or she will be very happy indeed!



C The following list gives the total number of votes won in seven constituencies in Pakistan. Place each number in Pakistani periods. Which constituency has the largest number of voters?

Constituency A: 386219  
3,86,219

Constituency B: 208678

Constituency C: 271200

Constituency D: 294757

Constituency E: 269802

Constituency F: 125389

Constituency G: 125389



Here is another 8-digit number placed in Pakistani periods:

51261211

Its number name is five crore, twelve lac, sixty-four thousand, eight hundred and twenty-one.

A Place these numbers in Pakistani periods and write their names:

4.06.85.012 **four crore  
six lac, eighty-five thousand  
and twelve**

67300159

30846002

73052814

11221120

58964371

B Write the numbers, placing your commas carefully:

five crore, one lac, twenty thousand and sixteen

5.01.20.016

1 three crore, eleven lac, forty-two thousand, three hundred

2 eight crore, thirty lac, nineteen thousand, four hundred and sixty-one

3 four crore, eighty-six lac, fifty thousand and ninety-two

4 six crore, forty-nine thousand, seven hundred and three

5 seven crore, three hundred and fifty-six

C Write the value of the ringed digit

4.①0.62.938

6.03.1⑧.461

⑧.15.67.032

5.00.⑨2.475

4.⑦3.85.693

9.8④32.777

1.16.00.⑤84



D Write in expanded form

5.26.49.032      5.00.00.000  
+ 20,00,000 + 6,00,000 +  
40,000 + 9,000 + 30 + 2

1 6.18.30.596

2 7.05.12.847

3 1.10.95.738

4 4.00.67.143

5 5.94.03.075

## One crore equals ten million

In Pakistan and throughout South Asia, the smallest 8-digit number is known as one crore and is written 1,00,00,000.

But if we use the word 'crore' in most other parts of the world, nobody will understand what we mean!



On our place-value chart, the smallest 8-digit number is called ten million and is shown like this:

Millions		Thousands			Units		
M	Th	T	Th	Th	H	T	U
1	0	0	0	0	0	0	0

A Write the number names:

46,030,100 *forty-six million thirty thousand, one hundred*

- 1 38,100,580
- 2 51,069,120
- 3 19,405,328
- 4 72,617,134
- 5 60,174,005

B Place these in periods, first in the Pakistani way, second in the international way:

40396425

38106259

12450031

41965478

73812096

26794502

C Write the numbers, placing your commas carefully

eighteen million four thousand and twenty-seven **18,004,027**

1. thirty-one million five hundred and ten thousand six hundred and three
2. forty-nine million one hundred and three thousand five hundred and eighty-two
3. seventy-eight million four hundred thousand eight hundred and twelve
4. twenty million six hundred and thirty-seven thousand five hundred and fifty-nine
5. eighty-eight million and fifteen



Adding very big numbers with 7 or 8 digits is simple, provided we are careful to write our columns neatly and carefully, and to work from the

$$\begin{array}{r}
 \begin{array}{ccccccc}
 & 1 & & 1 & 1 & & 1 \\
 2 & 4 & 5 & 6 & 1 & 3 & 8 \\
 + & 4 & 6 & 0 & 5 & 9 & 5 & 2 \\
 \hline
 7 & 0 & 6 & 2 & 0 & 9 & 0
 \end{array}
 \end{array}$$

When we finish adding we must also remember to put in our periods.

B Write in vertical form and complete (be careful with your columns!):

1.  $3,564,121 + 2,473,565$
2.  $82,14,960 - 12,28,340$
3.  $4,693,775 + 5,184,962$
4.  $16,49,827 + 49,16,782$
5.  $2,655,132 + 2,984 + 34,103$
6.  $1,030,499 + 38,324 + 5,687$
7.  $39,862 + 410,364 + 2,003,145$
8.  $465 + 2,49,00,321 + 1,092$
9.  $5,62,43,018 + 32 + 51,673$
10.  $84,65,321 + 7,495 + 1,18,626$

A Copy and complete:

1.  $\begin{array}{r} 1,984,623 \\ + 2,015,346 \\ \hline \end{array}$  6.  $\begin{array}{r} 23,569,231 \\ + 5,694,325 \\ \hline \end{array}$
2.  $\begin{array}{r} 14,07,156 \\ - 27,82,845 \\ \hline \end{array}$  7.  $\begin{array}{r} 4,468,571 \\ - 2,365,149 \\ \hline \end{array}$
3.  $\begin{array}{r} 3,407,862 \\ - 1,374,109 \\ \hline \end{array}$  8.  $\begin{array}{r} 15,650,192 \\ + 73,028,999 \\ \hline \end{array}$
4.  $\begin{array}{r} 24,67,333 \\ + 18,05,436 \\ \hline \end{array}$  9.  $\begin{array}{r} 3,48,35,117 \\ + 1,05,62,431 \\ \hline \end{array}$
5.  $\begin{array}{r} 37,91,604 \\ - 1,25,12,892 \\ \hline \end{array}$  10.  $\begin{array}{r} 8,27,54,380 \\ - 1,05,12,892 \\ \hline \end{array}$

## Using big numbers: subtraction

numbers. We're always careful with our columns.

$$\begin{array}{r} 28,497,284 \\ - 13,942,096 \\ \hline 12,555,168 \end{array}$$

A Copy and complete:

$$\begin{array}{r} 1. \quad 1,496,953 \\ - \quad 205,343 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 45,647,329 \\ - 14,538,142 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 4,875,648 \\ - 1,232,537 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 1,64,00,825 \\ - 79,36,172 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 28,64,932 \\ - 14,18,725 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 50,100,032 \\ - 28,052,164 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 51,95,438 \\ - 38,41,654 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 2,70,03,029 \\ - 1,08,16,420 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 6,032,159 \\ - 3,470,538 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 30,000,000 \\ - 15,457,628 \\ \hline \end{array}$$

B Write in vertical form and complete:

1. 85,231,569 - 16,829,293
2. 98,486,243 - 72,639,358
3. 2,00,00,360 - 38,745
4. 4,16,05,152 - 1,78,34,018
5. 45,003,620 - 37,598,132
6. 3,175,002 - 698,435
7. 5,62,41,650 - 2,18,64,137
8. 4,000,351 - 25,689
9. 32,034,629 - 1,465,117
10. 8,60,03,814 - 65,17,298

# Work with bigger numbers: multiplication

When multiplying very big multiplicands, we must be careful and accurate at every step.

$$\begin{array}{r}
 5983 \\
 \times 475 \\
 \hline
 29915 \quad (5983 \times 5) \\
 418810 \quad (5983 \times 70) \\
 2393200 \quad (5983 \times 400) \\
 \hline
 2841925
 \end{array}$$

A Copy and complete:

$$\begin{array}{r}
 864 \\
 \times 772 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 643 \\
 \times 772 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 495 \\
 \times 834 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 540 \\
 \times 540 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 2405 \\
 \times 321 \\
 \hline
 \end{array}$$

B Write in vertical form and complete:

$$1. 3,847 \times 431$$

$$2. 525 \times 866$$

$$3. 388 \times 627$$

$$4. 7,346 \times 398$$

$$5. 174 \times 872$$

$$6. 123 \times 456$$

$$7. 627 \times 196$$

$$8. 985 \times 254$$

$$9. 166 \times 187$$

$$10. 18,967 \times 232$$





Working with very big dividends is simple, provided we go carefully step by step:

Our example:  $826,934 \div 56$

How many 56s in 82?  
Only 1

How many 56s in 266?  
We guess 4:

$$56 \times 4 = 224$$

How many 56s in 429?  
We guess 7:

$$56 \times 7 = 392$$

How many 56s in 373?  
We guess 6:

$$56 \times 6 = 336$$

Remainder = 38

Our answer =  $14,766 \text{ r } 38$

$14,766 \text{ r } 38$

$$\begin{array}{r} 56 \overline{) 826,934} \\ \underline{56} \phantom{00} \end{array}$$

$$\underline{266}$$

$$\underline{224}$$

$$\underline{429}$$

$$\underline{392}$$

$$\underline{373}$$

$$\underline{336}$$

$$\underline{374}$$

$$\underline{336}$$

B Write the long division form as complete:

$$1. \quad 6,295 \div 31$$

$$8,706 \div 95$$

$$14,038 \div 87$$

$$28,653 \div 64$$

$$35,764 \div 59$$



A Copy and complete, working very carefully:

$$28 \overline{) 32,497}$$

$$24 \overline{) 18,726}$$

$$31 \overline{) 49,608}$$

$$25 \overline{) 51,072}$$

$$44 \overline{) 68,795}$$

C Copy and complete, working as carefully as you can:

$$248 \overline{) 32,561}$$

$$330 \overline{) 45,695}$$

$$187 \overline{) 29,364}$$

$$485 \overline{) 50,679}$$

$$643 \overline{) 72,996}$$

P#007

## Division: 3-digit divisors

We know how to work with 2-digit divisors.

We follow exactly the same steps when we work with 3-digit divisors (or even bigger ones).

Our example:

How many 381s in

483? Easy: 1!

How many 381s in

1027? Our guess: 3

$381 \times 3 = 1143$

$381 \times 2 = 762$

How many 381s in

2655? Guess: 7

We guess 7:

$381 \times 7 = 2667$

$381 \times 6 = 2286$

How many 381s in

3699? Guess: 9

$381 \times 9 = 3429$

Our answer = 1,269 r 270

$$\begin{array}{r}
 1269 \text{ r } 270 \\
 381 \overline{) 483.759} \\
 \underline{381} \phantom{00} \\
 1027 \phantom{00} \\
 \underline{762} \phantom{00} \\
 2655 \phantom{00} \\
 \underline{2286} \phantom{00} \\
 3699 \phantom{00} \\
 \underline{3429} \phantom{00} \\
 \text{r} = 270
 \end{array}$$

B Write in long division form and complete:

1.  $46,028 \div 384$

$52,169 \div 416$

$75,673 \div 549$

$34,396 \div 457$

$28,932 \div 535$

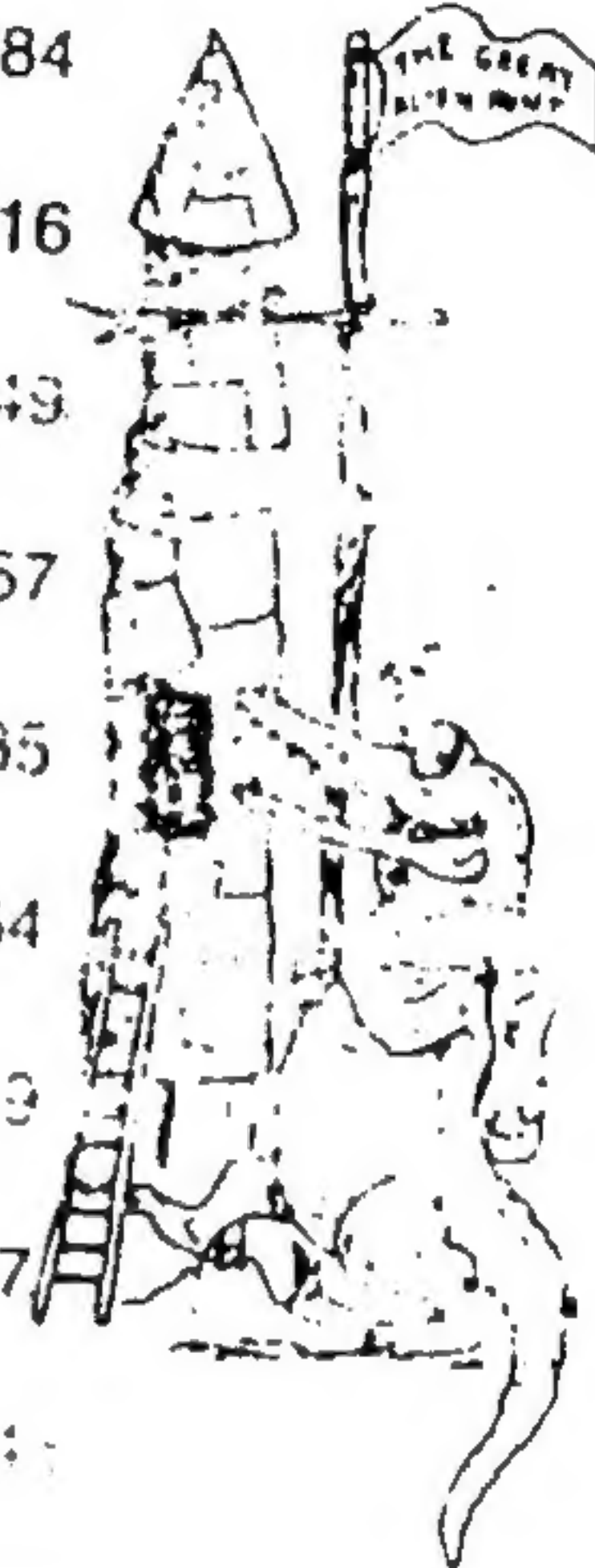
$15,721 \div 464$

$55,439 \div 719$

$49,868 \div 637$

$304,256 \div 241$

$561,324 \div 446$





# The four operations: ordering (simplification)

We now know how to add, subtract, multiply and divide using very big numbers.

But so far we've been doing each of our four operations separately:

For example:

$$\begin{array}{r} 146,329 \\ + 84,651 \\ \hline 230,980 \end{array}$$

$$\text{or } 384 \times 100 = 38,400$$

Sometimes, however, we need to do two or more of our four operations to solve a sum.

Look at this example:

$$9 - 6 + 3 \times 2 + 1 = ?$$

We need all four of our operations to solve this sum.

But in what order should we do them?

Let's see what happens when we solve the sum in 3 different ways:

1. We subtract first:	$9 - 6 = 3$
2. We next divide:	$3 + 3 = 6$
3. We multiply:	$6 \times 2 = 12$
4. Last we add:	$12 + 1 = 13$

Solve:	
1. We add:	$2 + 1 = 3$
2. We multiply:	$3 \times 3 = 9$
3. We divide:	$6 + 9 = \frac{6}{3} = 2$
4. Last we subtract:	$9 - 2 = 7$

Solution 3:	
1. We divide:	$6 - 3 = 2$
2. We multiply:	$2 \times 2 = 4$
3. We subtract:	$9 - 4 = 5$
4. We add:	$5 + 1 = 6$
	Answer = 6

we got three different answers!

It's not just the order of our four operations that's important, it's the order of our four operations in this order.

Division first

Multiplication second

Addition third

Subtraction last

Because this rule or convention makes it simpler for us to solve sums involving more than one operation, we call it the simplification rule.

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A Using the simplification rule, DMAS solve these sums

$$+ 9 + 3 \times 4 \quad (\text{multiply first, then adding})$$

$$= 9 + 12$$

$$= 21$$

Answer = 21

$$6 + 4 - 3 \quad 5 \quad 8 + 2 + 12$$

$$6 \times 5 - 5 \quad 10 - 3 - 3$$

$$11 + 2 \times 8 \quad 12 + 4 \times 5$$

$$30 + 6 + 3 \quad 16 + 8 + 2$$





## Simplification

**A** Now simplify these, using your DMAS rule:

★  $16 - 8 + 4$  (divide first)  
 $8 + 4 = 12$

$16 - 12 = 4$

∴ Answer = 4

1.  $12 \times 6 + 3$
2.  $84 \div 7 \times 10$
3.  $14 - 21 \div 3$
4.  $58 - 24 \div 8$
5.  $15 \times 42 + 14$
6.  $108 \div 12 + 46$
7.  $20 - 16 \div 4$
8.  $17 + 5 \times 20$
9.  $70 - 8 + 2$
10.  $81 - 4 \times 14$

We follow the same DMAS rule when we work with 3 different operations:

example:

From our DMAS rule, we know we should multiply first:

What we do	Our sum becomes
1. We multiply $2 \times 4 = 8$	$6 + 8$
2. We add $6 + 8 = 14$	$14 - 8$
3. We subtract $14 - 8 = 6$	
Answer: $6 + 2 \times 4 - 8 = 6$	

**B** Now simplify these:

$3 \times 2 + 6 - 5$

$128 - 4 + 12 \times 5$

$6 \times 5 + 12 \div 4$

$12 \times 4 + 6 \div 2$

$25 + 5 + 4 \times 3$

$18 \times 6 + 2 - 24$

**C** Remember your DMAS rule and simplify these:

1.  $7 + 6 + 2 \times 18$

2.  $5 \times 15 + 3 + 49$

3.  $121 \div 11 + 5 \times 20$

4.  $16 + 9 - 3 \times 2$

5.  $8 \times 14 + 7 - 10$

6.  $25 + 35 + 7 \times 12$

7.  $84 + 12 \times 3 - 6$

$48 \times 3 - 102 + 14$

Let's now try a sum involving all four operations:

example:  $12 \times 4 + 6 + 2 - 11$

What we do	Our sum becomes
1. We divide $6 \div 2 = 3$	$12 \times 4 + 3$
2. We add $12 \times 4 = 48$	$48 + 3 = 51$
3. We add $48 + 3 = 51$	$51 + 2 = 53$
4. We subtract $53 - 11 = 42$	
Answer: $12 \times 4 + 6 \div 2 + 2 - 11 = 42$	

**D** Think carefully, then simplify

$18 + 4 \times 6 + 2 - 7$

$25 + 5 \times 3 + 6 + 12$

$3 \times 12 + 5 + 20 + 5$

$31 + 24 + 8 \times 9 - 39$

$45 + 5 + 7 \times 11 - 20$

$9 \times 12 + 18 + 6 - 16$

$14 + 28 + 7 \times 3 - 17$

$7 \times 50 + 32 + 8 - 121$

So far, we've used brackets in sums involving only two operations, for example, addition and subtraction, subtraction and multiplication.

But they are also very helpful in more complex sums with three or even four operations.

To help us decide the order in which to do the operations, we use three different types of brackets:

1. The round bracket:  $( )$
2. The double bracket:  $\{ \}$  and
3. The square bracket:  $[ ]$

If we find all three types of brackets used in a sum, we simplify in this order:

1. The part of the sum in round brackets
2. The part in double brackets and
3. The part in square brackets last.

For example, look at this sum:

$$60 - [48 - \{16 + (8 - 4)\}]$$

All three types of bracket are used.

We first tackle the part in round brackets:

$$(8 - 4) = 4$$

we simplify the part in double brackets

$$\{16 + 4\} = 20$$

we do the square brackets part:

$$[48 - 20] = 28$$

Complete our simplification:

$$60 - 28 = 32$$

**A** Working carefully, copy and simplify these sums:

$$4 + [15 - \{7 + (6 - 2)\}]$$

$$6 \div 2 = 3 \text{ (round brackets)}$$

$$7 - 3 = 4 \text{ (double brackets)}$$

$$4 + 5 = 9 \text{ (square brackets)}$$

$$\text{Answer} = 9$$

$$24 - [5 + \{8 - (9 - 6)\}]$$

$$2 \times [18 - \{6 + (9 \div 3)\}]$$

$$\{30 - (16 \div 8)\} \times 12$$

$$[100 - \{80 + (20 \times 2)\}] + 3$$

$$80 + [10 \times \{16 - (8 \div 2)\}]$$

$$\{45 + (83 \times 3)\} - 16$$



...of divisibility. They helped us find out, quickly and easily, which factors make up a number (in other words, by what numbers it can be divided with no remainder).

A Sid Spacewalker is trying to remember his rules of divisibility:



Help him to do so by filling in the blanks:

Any number with 5 or 0 in the units column is divisible by 5.

Any even number must be divisible by 2.

A number whose digits add up to a multiple of 3 is divisible by 3.

All numbers which are divisible by 9 have digits that add up to a multiple of 9.

An example of a number which is divisible by 5 and by 10 is 10.

B Which of these numbers is divisible by 3?

- |           |           |
|-----------|-----------|
| 1. 149    | 2. 306    |
| 3. 5,481  | 4. 6,073  |
| 5. 82,602 | 6. 19,400 |

C Which of these numbers is divisible by 5?

- |              |              |
|--------------|--------------|
| 1. 6,000,332 | 3. 7,155,534 |
| 2. 49,16,495 | 4. 17,03,760 |

D Write down six 7-digit numbers which are divisible by 9.

(an easy one!)

Look at these multiples of 10:  
100, 17,100, 300,640, 7,032,790

They all have a 0 in the units

★ Any number ...

E Tick the numbers which are divisible by 10:

- |           |               |
|-----------|---------------|
| 1. 4,960  | 4. 720,395    |
| 2. 3,701  | 5. 11,624,340 |
| 3. 11,000 | 6. 75,06,248  |

Test 6

Let's take the number 584, and look at the tens and units digits:

5

Can 84 (the number formed by the tens and units) be divided by 4?

Yes, it can:  $84 \div 4 = 21$

This tells us that 584, too, is divisible by 4.

We can divide to check:



$$\begin{array}{r} 146 \\ 4 \overline{) 584} \\ \underline{4} \phantom{00} \\ 18 \phantom{00} \\ \underline{16} \phantom{00} \\ 24 \phantom{00} \\ \underline{24} \phantom{00} \\ 0 \end{array}$$

$$584 \div 4 = 146 \text{ r } 0$$

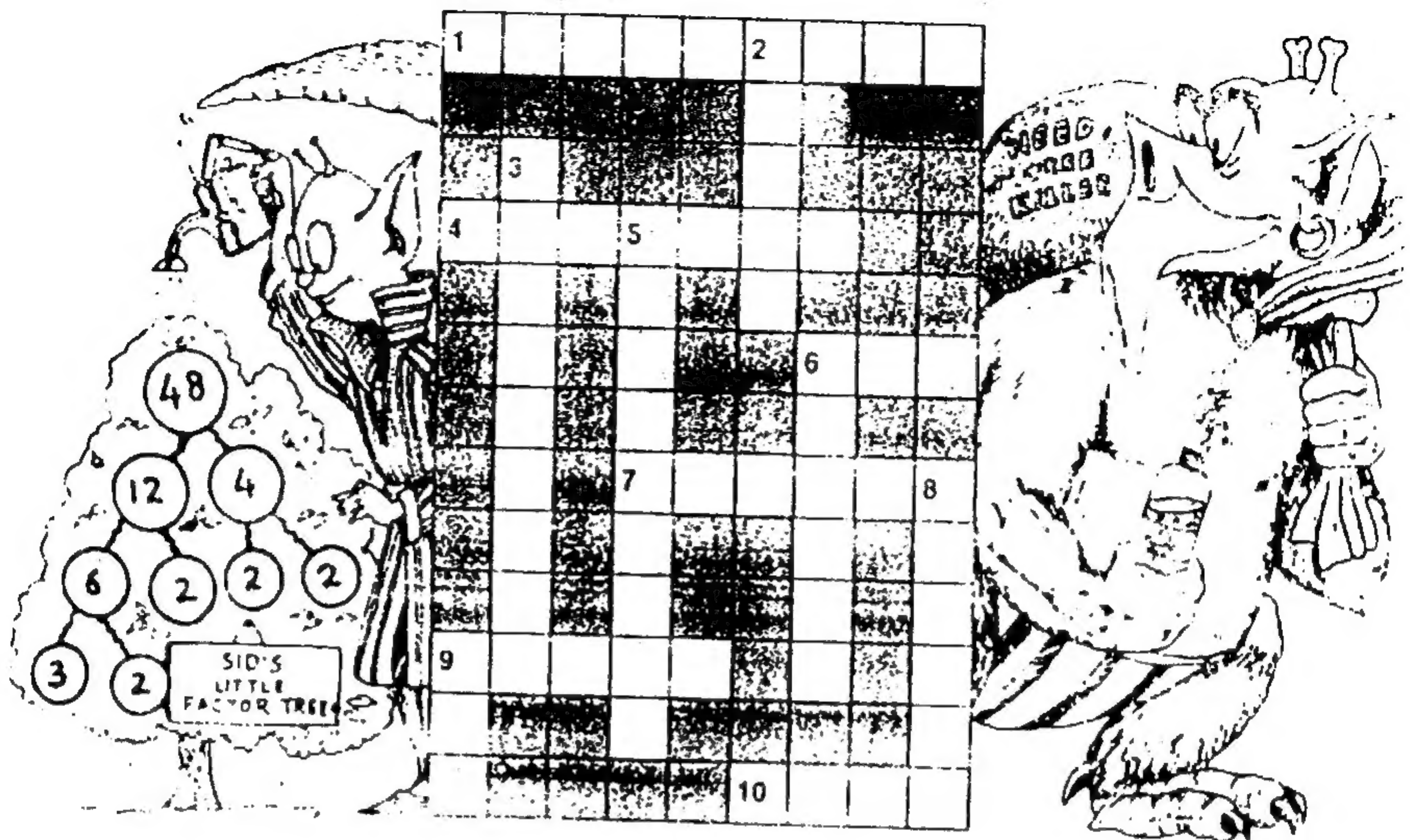
★ A number is formed by the tens and units digits.

F Which of these is divisible by 4?

- |           |              |
|-----------|--------------|
| 1. 629    | 23,656       |
| 2. 3,426  | 1,17,905     |
| 3. 555    | 26,072       |
| 4. 17,504 | 8. 3,645,064 |

P# 0012





4, 6, 8, 10 and 12 are all multiples of the number 2.

Two numbers which have only 1 as their common factor are called prime numbers.

All even numbers are multiples of this number. 2

Every number is a factor of itself.

On a number line 1-10, the next greatest prime number after five is 7.

The number eight has four factors.

A number with only two different factors (itself and 1) is called a prime number.

Composite numbers have more than two different factors.

A multiple is a number which can be divided by another number, this is any number.

The LCM of 4 and 6 is 12.

Number 1 is a factor of every number.

12, 18, 24 and 30 are all multiples of the number 6.

P#0013